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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DANIELS, MATTHEW J

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/828,565

Applicant(s)

BUCHENROTH, FELIX R.

Examiner

Matthew J. Daniels

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 1-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In the reply filed 1 March 2006, Claims 30 and 32 were amended and Claims 46-50 were added.

Election/Restrictions

2. Applicant confirmed the election without traverse of Group II, Claims 30-45, in the response filed 1 March 2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 30-33, 35, 38, 39, and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406). **As to Claim 30**, Virgili teaches a method of making an artifact mold (1:41-2:53) comprising:
providing a formation having a varied surface (1:43,1:47, 1:40-65),
providing at least one structure (1:43-45),
adhering the at least one structure to the formation to produce an artifact form (1:43), and
making an artifact mold using the artifact form (2:23-28 and 2:40-48).

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Virgili is silent to “reef-organism” structures, and adhering the “reef-organism” structure to the formation. However, it would have been prima facie obvious to provide a reef-organism structure in view of Hudson, who teaches covering a surface with living coral species to create a substrate and add complexity to the outer surface of a rock formation (6:42-47). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Hudson into that of Virgili in order to create a substrate and add complexity to the outer surface of a simulated rock formation. **As to Claims 31-33**, coral is a naturally occurring reef organism, and also simulates the same (6:42-47). As to the new limitations to Claim 32, the particular shape of the object is at the discretion of the artisan, but the selection of a particular shape to be used would not materially affect the claimed *method*. **As to Claim 35**, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to provide a plurality of reef organism structures to simulate the same appearance over a larger area in the combined method. **As to Claim 38**, Virgili teaches (i) pouring a moldable material into the reef artifact mold (cement, 2:10-14) and (ii) allowing the moldable material to harden to form a reef article, and removing the artifact from the artifact mold (2:23-28). **As to Claim 39**, repetition of the steps to provide multiple artifacts would have been prima facie obvious over Virgili’s method. Virgili is silent to mounting the plurality of artifacts on a structure. However, this aspect is obvious over Hudson’s teaching of mounting the artifacts on a structure (6:64-7:8 and 8:28-35). **As to Claim 46**, the Examiner interprets cement and concrete to pertain to the same substance, and Virgili teaches the pouring, curing, and removal of the mold (2:23-28).

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1. **Claim 34** is rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406), and further in view of Marcus (USPN 3012285).

Virgili and Hudson teach the subject matter of Claim 30 above under 35 USC 103(a). Virgili and Hudson are silent to the claimed travertine stone. However, Marcus teaches that it is known to form a mold taken from a natural surface of travertine marble (1:55-65). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Marcus into that of Virgili and Hudson in order to provide an aesthetically pleasing mottled effect on the surface with rough and irregular cavities of varying depth and size which cause them to stand out in high contrast against the light surface coloration (1:30-37). This affect would have been desirable in a decorative aquarium.

2. **Claim 36** is rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406), and further in view of Finelt (USPN 3095605). Virgili and Hudson teach the subject matter of Claim 35 above under 35 USC 103(a). As to **Claim 36**, Virgili and Hudson appear to be silent to forming a rubber negative mold of each of the structures and pouring a wax into the rubber negative molds to form the structures. However, these aspects are common in the art and are taught by Finelt (1:8-15 and 1:20-34). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Finelt into that of Virgili and Hudson in order to reproduce the desired form repeatedly and accurately, and to minimize work time (3:52).

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3. **Claim 37** is rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406), Finelt (USPN 3095605), and further in view of Poe (USPN 3254379). Virgili, Hudson, and Finelt teach the subject matter of Claim 36 above under 35 USC 103(a). **As to Claim 37**, Virgili teaches adhering with glue (1:43), but Virgili, Hudson, and Finelt are silent to the claimed adhering by melting a surface layer of wax of each of the structures and adhering them to the formation. However, this aspect would have been prima facie obvious over Poe, who teaches melting a surface layer of wax of each of the structures and adhering each of them to the formation before the wax hardens (4:34-42). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Poe into that of Virgili, Hudson, and Finelt because Poe specifically suggests that the means of bonding has particular use where a flat pattern of expendable material is used (4:40-43), and because Poe's method lends itself to large scale and efficient production techniques (3:48-55).

4. **Claim 40** is rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406), and further in view of Boots (USPN 3888209) and Grillo (USPN 4045933). Virgili and Hudson teach the subject matter of Claim 39 above under 35 USC 103(a). **As to Claim 40**, it is noted that the independent claim (Claim 30) is drawn to "A method for making a reef artifact mold." The Examiner submits that the mounting method claimed in this claim does not materially affect the method of making the reef artifact mold upon which this claim depends because the claimed steps occur after the artifact mold has been made.

However, Hudson additionally teaches that it is known to attach a reef structure to a rocky sea bed with cement (8:31). Virgili and Hudson are silent to drilling holes, inserting bolts, and using a marine epoxy to permanently fix the bolt in the hole, and mounting reef artifacts on the bolts. However, Grillo teaches drilling (4:33) and also that materials for anchoring joining members in holes are well known in the art (4:49-49), including epoxy (4:46). Boots additionally teaches that it is known and obvious to attach an artificial reef by epoxy or waterproof adhesive (7:15-16). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Grillo and Boots into that of Virgili and Hudson because epoxies are a well known method for anchoring joining members in holes (Grillo), and because a waterproof epoxy would have been an obvious choice for structures to be mounted underwater.

5. **Claim 41** is rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406), and further in view of Galloway (USPN 4126102). Virgili and Hudson teach the subject matter of Claim 39 above under 35 USC 103(a). **As to Claim 41**, it is noted that the independent claim (Claim 30) is drawn to “A method for making a reef artifact mold.” The Examiner submits that the mounting method claimed in this claim does not materially affect the method of making the reef artifact mold upon which this claim depends because the claimed steps occur after the artifact mold has been made.

Virgili and Hudson are silent to the mounting depth below a water surface. However, the Examiner takes the position that article formed by the combined method of Virgili and Hudson is capable of performing the recited intended use, and thus meets the claim. However, additionally,

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Galloway teaches an aquarium that has a height of approximately 72 inches, or 6 feet tall (3:24-45). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Galloway into that of Virgili and Hudson in order to provide a geometric aquarium which have a height several times the width of the widest side (2:25-41 and all figures).

6. **Claims 42-45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406), and further in view of Di Giacomo (USPN 3950477). Virgili and Hudson teach the subject matter of Claim 39 above under 35 USC 103(a). **As to Claim 42**, Virgili and Hudson are silent to the mounting bracket. However, Di Giacomo teaches a mounting bracket partially inserted into the moldable material (4:9-23 and Fig. 6, Item 35). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Di Giacomo into that of Virgili and Hudson in order to provide hooks to assist lifting of the simulated rock formation out of the mold (4:15-21) and assist in mounting the article in its permanent location. **As to Claim 43**, Hudson teaches that it is desirable to provide a crawl space for various organisms (animals) by mounting in a spaced relationship (6:53-61). **As to Claim 44**, Di Giacomo teaches concrete (4:20). Virgili and Hudson also each teach concrete (see the entire documents). **As to Claim 45**, Hudson teaches calcium carbonate (6:45) in the concrete (6:33-35).

7. **Claims 47-50** are rejected under 35 U.S.C. 103(a) as being unpatentable over Virgili (USPN 4496511) in view of Hudson (USPN 5215406), Finelt (USPN 3095605), and Poe (USPN

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3254379). **As to Claim 47**, Virgili teaches a method of making an artifact (1:41-2:53) that would be suitable for use in an aquatic environment, comprising:

- providing a formation having a varied surface (1:43,1:47, 1:40-65),
- providing at least one structure (1:43-45),
- adhering the at least one structure to the formation to produce an artifact form (1:43), and
- making an artifact mold using the artifact form (2:23-28 and 2:40-48);
- pouring a moldable material into the mold (2:2); and
- allowing the moldable material to harden (2:23-28).

Virgili appears to be silent to a “reef-organism structure” and the steps of forming at least one reef-organism structure comprising:

- selecting at least one real or simulated reef-organism;
- forming a mold of each of the at least one real or simulated reef-organisms; and
- molding at least one reef-organism structure;

However, these aspects would have been prima facie obvious for the following reasons:

- a) Hudson teaches covering a surface with living coral species, which is a reef-organism structure, to create a substrate and add complexity to the outer surface of a rock formation (6:42-47).
- b) Finelt teaches selecting at least one structure (jewelry, 3:44);
 - forming a mold of each of the at least one structure (3:44-46); and
 - molding at least one structure (3:46-55);
- c) Poe teaches attaching structures onto a base to provide “clusters” (1:33) and the assembled article serving as a form about which a mold is formed (columns 1 and 4).

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It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Hudson, Finelt, and Poe into that of Virgili for the following reasons:

a) in order to create a substrate and add complexity to the outer surface of a simulated rock formation (Hudson)

b) in order to reproduce the desired form repeatedly and accurately, and to minimize work time (Finelt, 3:52)

c) to provide a molding method that is suitable for large scale and efficient production techniques (Poe, 3:48-55)

As to Claim 48, the particular shapes or number of shapes selected is an aesthetic choice at the discretion of the artisan. However, the number of shapes selected or used on a particular form does not materially affect the method. **As to Claim 49**, the mold of Virgili could obviously be reused, and it is the Examiner's position that it would have been prima facie obvious to do so. Additionally, Virgili teaches producing "duplicate stone-faced pillars" (2:42), and thus it appears that Virgili teaches this aspect.

As to Claim 50, Virgili teaches a method of making an artifact (1:41-2:53) that would be suitable as a reef-artifact for use in an aquatic environment, comprising:

providing a formation having a varied surface (1:43, 1:47, 1:40-65) which could be used as a reef,

providing a plurality of structures (1:43-45, column 1),

adhering structures to the formation to produce an artifact form (1:43), and

making an artifact mold using the artifact form (2:23-28 and 2:40-48);

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pouring a concrete mixture into the mold (2:2); and

allowing the mixture to harden (2:23-28).

Virgili appears to be silent to the following steps:

providing a plurality of molded reef-organism structures that simulates a real reef

organism wherein providing a plurality of molded reef-organism structures that simulates a real reef organism comprises:

selecting a plurality of dehydrated reef organisms;

forming a rubber negative mold of each of the plurality of dehydrated reef organisms;

pouring a wax into each of the rubber negative molds to form the plurality of reef-organism structures;

However, these aspects would have been prima facie obvious for the following reasons:

a) Hudson teaches that it is desirable to cover a surface with coral species, which is a reef-organism structure, to create a substrate and add complexity to the outer surface of a rock formation (6:42-47).

b) Finelt teaches selecting at least one structure (jewelry, 3:44);

forming a rubber negative mold of each of the at least one structure (3:44-46); and

casting a wax into the rubber negative molds to form a plurality of structures (3:46-55);

c) Poe teaches attaching wax structures onto a base to provide “clusters” (1:33) and the assembled article serving as a form about which a mold is formed (columns 1 and 4).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Hudson, Finelt, and Poe into that of Virgili for the following reasons:

- a) in order to create a substrate and add complexity to the outer surface of a simulated rock formation (Hudson)
- b) in order to reproduce the desired form repeatedly and accurately, and to minimize work time (Finelt, 3:52)
- c) to provide a molding method that is suitable for large scale and efficient production techniques (Poe, 3:48-55)

Response to Arguments

Applicant's arguments filed 1 March 2006 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

- a) The present invention is directed to reef artifacts which can be placed in an aquatic environment to provide habitat for aquatic life. The reef artifacts produced from the molds of the present invention have intricate features of a reef or reef organisms. The mold allows users to repeatedly produce a reef artifact with fine details without having to carve or shape every artifact.
- b) The method generally includes adhering reef-organism structures” to a reef-like formation to make a reef-artifact form which is used as a template to make a mold. The mold made from the form has the negative impression of features that simulate an actual reef.

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c) Virgili teaches stone faced pillars by making a post and adhering stone pieces to the wood.

Virgili fails to teach the step of providing a varied surface because the rectangular wood post is coated with plaster of Paris, which is not reef-like. There is no motivation to combine Hudson with Virgili.

d) Virgili teaches away from using a reef-like formation having a varied surface in that the plaster-of-Paris provides a smooth surface, which is not varied.

e) There is no suggestion to modify Virgili by substituting the clam shells taught by Hudson for the stones taught in Virgili. The purpose of Virgili is to produce pillars that have a stone-like exterior, not a simulated reef.

These arguments are not persuasive for the following reasons:

a, b) The Applicant's arguments appear to give particular weight to the claimed shape and intended use of the reef structure and the organism shapes provided thereon. However, the Examiner submits that intended uses of *the article produced* are not given full weight in claims drawn to the *method of making* the article so long as it is capable of performing the claimed intended use. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness, but instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and MPEP 2111.02. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case, no

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manipulative difference is conferred by the intended use because both Virgili and the claimed method utilize cementitious materials.

c, e) In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation provided does not appear to be particularly argued. However, the Examiner submits that Virgili's method would not be limited only to stones, and that the ordinary artisan would have found it obvious, desirable, and suggested to provide any structures that add complexity to the surface of the duplicated structures.

d) The Examiner respectfully disagrees with the Applicant's position regarding the "varied" surface and the alleged teaching away by Virgili from the combination.

Firstly, either wood or plaster-of-Paris is interpreted to have a "varied" surface on either a microscopic or macroscopic basis. Thus, the amendments to the independent claim presented previously do not overcome the rejection under 35 USC 103(a).

Additionally, these arguments and amendments appear to be drawn to a particular *shape or structure*, which do not patentably distinguish the *method* by limitations that would materially affect the process. The Examiner submits that the reference to Virgili is extremely relevant in this case because it teaches the same process sought in Applicant's claims, namely a method of making a concrete casting mold, and subsequently using the mold to cast concrete forms. The

reference to Hudson was provided to show that the particular shapes are also known, however, the Examiner submits that the reference to Virgili could stand alone in this regard because the differences claimed but not explicitly disclosed by Virgili are drawn the particular shapes produced. The Examiner submits that the patent to Virgili does not teach away from the combination because the particular configuration of the objects on the surface is an aesthetic variable which is at the discretion of the artisan, and Virgili does not teach coral or other aesthetic components as being undesirable in any way.

The differences pointed out between Virgili and the claims are in the particular shapes attached onto the form (Claim 30), and the method in which those shapes are made (in the newly presented claims 47-50). However, it is the Examiner's position that (1) the particular shapes attached onto the form or base do not materially affect the method, and in the alternative, that the particular shapes are still *prima facie* obvious over Hudson, and (2) that the particular method of molding the shapes and subsequently attaching those shapes on a base reads on the well-known casting process of forming wax models and attaching those wax models onto a base or tree to serve as a form for a mold, as disclosed by Finelt and Poe.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 7:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJD 5/11/06



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